

AMENDMENTS TO THE CLAIMS

1-55. **(Canceled)**

56. **(Currently Amended)** A safety stock amount calculation method, ~~characterized by comprising the steps of:~~

calculating, using a processor configured to operate as a delivery time appearance probability calculation section, an appearance probability of a certain delivery time ~~for each delivery time~~ based on ~~the~~ a delivery time for a certain commodity required by a customer and ~~its~~ frequency;

calculating an appearance probability of a lead time of the commodity or ~~its~~ components of the commodity;

calculating, based on the customer's required delivery time and lead time, an effective lead time T_i that denotes ~~the~~ a period between ~~the~~ a time when it has been predicted that the commodity stock will fall below a corresponding reorder point and ~~the~~ a time when the commodity has become available after the commodity had been ordered based on the prediction that the commodity stock would fall below a corresponding reorder point;

calculating an appearance probability of the effective lead time T_i ~~for each effective lead time T_i~~ based on the appearance probability of the customer's required delivery time and the appearance probability of the lead time; and

calculating a safety stock amount ss based on a demand standard deviation σ_D for the commodity per unit of period, a safety coefficient k that denotes the level of a ratio of service S for demand, the effective lead time T_i and the appearance probability of the effective lead time.

57. **(Currently Amended)** A ~~The~~ reorder point calculation method of claim 56, further comprising:

~~characterized by comprising~~ calculating a reorder point Q_{RO} based on a safety stock amount ss calculated by the safety stock amount calculation method as described in claim 56, a representative value DA ~~from which elected~~ including any one of an average value, median, mode and experimental value of a demand per unit of period, and a marginal lead time L_M that denotes a minimum value of the effective lead time to be obtained after the cumulative value of the appearance probability of the effective lead time T_i has exceeded the ratio of service S .

58. **(Currently Amended)** The reorder point calculation method according to claim 57, ~~characterized by further~~ comprising:

calculating the reorder point Q_{RO} by ~~further~~ using a demand frequency F_D that denotes an appearance probability of the period during which demand per unit of period is not 0 in addition to the safety stock amount ss , representative value DA of a demand, and marginal lead time L_M .

59. **(Currently Amended)** A safety stock amount calculation method ~~characterized by~~ comprising ~~the steps of~~:

calculating, using a processor configured to operate as a delivery time appearance probability calculation section, an appearance probability of a certain delivery time ~~for each delivery time~~ based on ~~the a~~ delivery time for a certain commodity required by a customer and ~~its~~ frequency to create a probability distribution g_j of the customer's required delivery time;

calculating an appearance probability of a lead time of the commodity or ~~its~~ components of the commodity to create a probability distribution h_k of the lead time;

calculating, based on the customer's required delivery time and lead time, an effective lead time T_i that denotes ~~the a~~ period between ~~the a~~ time when it has been predicted that the commodity stock will fall below a corresponding reorder point and ~~the a~~ time when the commodity has become available after the commodity had been ordered based on the prediction that the commodity stock would fall below a corresponding reorder point;

calculating an appearance probability of the effective lead time T_i ~~for each effective lead time T_i~~ based on the probability distribution g_j of the customer's required delivery time and the probability distribution h_k of the lead time to create a probability distribution f_i of the effective lead time; and

calculating a safety stock amount ss based on a demand standard deviation σ_D for a certain commodity per unit of period, a safety coefficient k that denotes the level of a ratio of service S for demand, the effective lead time T_i and the probability distribution f_i of the effective lead time.

60. **(Currently Amended)** The safety stock amount calculation method according to claim 59, ~~characterized in that~~ wherein the step of calculating the safety stock amount ss calculates the safety stock amount ss using the following equation:

$$ss = k\sqrt{\sum f_i^2 T_i} \sigma_D$$

61. **(Currently Amended)** The safety stock amount calculation method according to claim 59, ~~characterized in that~~ wherein the step of calculating the safety stock amount ss further uses a demand frequency F_D that denotes an appearance probability of the period during which demand per unit of period is not 0.

62. **(Currently Amended)** The safety stock amount calculation method according to claim 59, ~~characterized in that~~ wherein at least one of the probability distribution of g_j of the customer's required delivery time and the probability distribution h_k of the lead time is a discrete probability distribution.

63. **(Currently Amended)** A reorder point calculation method of claim 59, ~~characterized by~~ further comprising:

calculating a reorder point Q_{RO} based on a safety stock amount ss calculated ~~by the safety stock amount calculation method as described in claim 59~~, a representative value DA ~~from which elected~~ including any one of an average value, median, mode and experimental value of a demand per unit of period, and a marginal lead time L_M that denotes a minimum value of the effective lead time to be obtained after the cumulative value of the appearance probability of the effective lead time T_i has exceeded the ratio of service S.

64. **(Currently Amended)** The reorder point calculation method according to claim 59, ~~characterized by~~ further comprising:

calculating the reorder point Q_{RO} by further using a demand frequency F_D that denotes an appearance probability of the period during which demand per unit of period is not 0 in addition to the safety stock amount ss, representative value DA of a demand, and marginal lead time L_M .

65. **(Currently Amended)** A safety stock amount calculation device, ~~characterized by~~ comprising:

a storage unit, the storage unit including a non-transitory computer-readable recording medium storing a program; and

at least one processor configured to operates as:

a delivery time appearance probability calculation section that calculates an appearance probability of a certain delivery time ~~for each delivery time~~ based on ~~the~~ a delivery time for a certain commodity required by a customer and its frequency;

a lead time appearance probability calculation section that calculates an appearance probability of a lead time of the commodity or ~~its components~~ of the commodity;

an effective lead time calculation section that calculates, based on the customer's required delivery time and lead time, an effective lead time T_i that denotes ~~the~~ a period between ~~the~~ a time when it has been predicted that the commodity stock will fall below a corresponding reorder point and ~~the~~ a time when the commodity has become available after the commodity had been ordered based on the prediction that the commodity stock would fall below a corresponding reorder point;

an effective lead time appearance probability calculation section that calculates an appearance probability of the effective lead time T_i ~~for each lead time T_i~~ based on the appearance probability of the customer's required delivery time and the appearance probability of the lead time; and

a safety stock amount calculation section that calculates a safety stock amount ss based on a demand standard deviation σ_D for a certain commodity per unit of period, a safety coefficient k that denotes the level of a ratio of service S for demand, the effective lead time T_i and the appearance probability of the effective lead time.

66. **(Currently Amended)** A safety stock amount calculation device, ~~characterized by~~ comprising:

a storage unit, the storage unit including a non-transitory computer-readable medium storing a program; and

at least one processor configured to operates as:

a probability distribution of customer's required delivery time calculation section that calculates an appearance probability of a certain delivery time ~~for each delivery time~~ based on ~~the a~~ delivery time for a certain commodity required by a customer and ~~its~~ frequency to create a probability distribution g_j of the customer's required delivery time;

a lead time probability distribution calculation section that calculates an appearance probability of a lead time of the commodity or ~~its components~~ of the commodity to create a probability distribution h_k of the lead time;

an effective lead time calculation section that calculates, based on the customer's required delivery time and lead time, an effective lead time T_i that denotes ~~the a~~ period between ~~the a~~ time when it has been predicted that the commodity stock will fall below a corresponding reorder point and ~~the a~~ time when the commodity has become available after the commodity had been ordered based on the prediction that the commodity stock would fall below a corresponding reorder point;

an effective lead time probability distribution calculation section that calculates an appearance probability of the effective lead time T_i ~~for each lead time T_i~~ based on the probability distribution g_j of the customer's required delivery time and ~~the a~~ probability distribution h_k of the lead time to create a probability distribution f_i of the effective lead time; and

a safety stock amount calculation section that calculates a safety stock amount ss based on a demand standard deviation σ_D for a certain commodity per unit of period, a safety coefficient k that denotes the level of a ratio of service S for demand, the effective lead time T_i and the probability distribution f_i of the effective lead time.

67. (Currently Amended) A non-transitory computer-readable recording medium storing a safety stock amount calculation program that allows, in order to calculate a safety stock amount ss of a certain commodity, a computer to function as:

means for calculating, based on a customer's required delivery time and a lead time of the commodity or ~~its components~~ of the commodity, an effective lead time T_i that denotes ~~the a~~ period between ~~the a~~ time when it has been predicted that the commodity stock will fall below a corresponding reorder point and ~~the a~~ time when the commodity has become available after the commodity had been ordered based on the prediction that the commodity stock would fall below a corresponding reorder point;

means for calculating an appearance probability of the effective lead time T_i ~~for each lead time T_i~~ -based on an appearance probability of the customer's required delivery time calculated from the customer's required delivery time and ~~its~~ frequency and an appearance probability of the lead time of the commodity or ~~its~~ components of the commodity; and

means for calculating a safety stock amount ss based on a demand standard deviation σ_D for the commodity per unit of period, a safety coefficient k that denotes the level of a ratio of service S for demand, the effective lead time T_i and the appearance probability of the effective lead time.

68. **(Currently Amended)** A non-transitory computer-readable recording medium storing a safety stock amount calculation program that allows, in order to calculate a safety stock amount ss of a certain commodity, a computer to function as:

means for calculating an appearance probability of a certain delivery time ~~for each delivery time~~-based on the delivery time for a certain commodity required by a customer and ~~its~~ frequency to create a probability distribution g_j of the customer's required delivery time;

means for calculating an appearance probability of a lead time of the commodity or ~~its~~ components of the commodity to create a probability distribution h_k of the lead time;

means for calculating, based on the customer's required delivery time and lead time, an effective lead time T_i that denotes ~~the~~ a period between ~~the~~ a time when it has been predicted that the commodity stock will fall below a corresponding reorder point and ~~the~~ a time when the commodity has become available after the commodity had been ordered based on the prediction that the commodity stock would fall below a corresponding reorder point;

means for calculating an appearance probability of the effective lead time T_i ~~for each lead time T_i~~ -based on the probability distribution g_j of the customer's required delivery time and the probability distribution h_k of the lead time to create a probability distribution f_i of the effective lead time; and

means for calculating a safety stock amount ss based on a demand standard deviation σ_D for the commodity per unit of period, a safety coefficient k that denotes the level of a ratio of service S for demand, the effective lead time T_i and the probability distribution f_i of the effective lead time.

69. **(Currently Amended)** A reorder point calculation device, ~~characterized by comprising:~~
a storage unit, the storage unit including a non-transitory computer-readable medium
storing a program; and
at least one processor configured to operates as:
a delivery time appearance probability calculation section that calculates an appearance probability of a certain delivery time ~~for each delivery time~~ based on the delivery time for a certain commodity required by a customer and its frequency;
a lead time appearance probability calculation section that calculates an appearance probability of a lead time of the commodity or ~~its components~~ of the commodity;
an effective lead time calculation section that calculates, based on the customer's required delivery time and lead time, an effective lead time T_i that denotes ~~the a~~ a period between ~~the a~~ a time when it has been predicted that the commodity stock will fall below a corresponding reorder point and ~~the a~~ a time when the commodity has become available after the commodity had been ordered based on the prediction that the commodity stock would fall below a corresponding reorder point;
an effective lead time appearance probability calculation section that calculates an appearance probability of the effective lead time T_i ~~for each lead time T_i~~ based on the appearance probability of the customer's required delivery time and the appearance probability of the lead time;
a safety stock amount calculation section that calculates a safety stock amount ss based on a demand standard deviation σ_D for the commodity per unit of period, a safety coefficient k that denotes the level of a ratio of service S for demand, the effective lead time T_i and the appearance probability of the effective lead time; and
a reorder point calculation section that calculates a reorder point Q_{RO} based on the safety stock amount ss , a representative value DA ~~from which elected~~ including any one of an average value, median, mode and experimental value of a demand per unit of period, and a marginal lead time L_M that denotes a minimum value of the effective lead time to be obtained after the cumulative value of the appearance probability of the effective lead time T_i has exceeded the ratio of service S .

70. **(Currently Amended)** The reorder point calculation device according to claim 69, ~~characterized in that~~ wherein the reorder point calculation section calculates the reorder point Q_{RO} by ~~further~~ using a demand frequency F_D that denotes an appearance probability of the period during which demand per unit of period is not 0 in addition to the safety stock amount ss , representative value DA of a demand, and marginal lead time L_M .

71. **(Currently Amended)** A reorder point calculation device, ~~characterized by comprising:~~

a storage unit, the storage unit including a non-transitory computer-readable medium storing a program; and

at least one processor configured to operates as:

a probability distribution of customer's required delivery time calculation section that calculates an appearance probability of a certain delivery time ~~for each delivery time~~ based on ~~the a~~ delivery time for a certain commodity required by a customer and ~~its~~ frequency to create a probability distribution g_j of the customer's required delivery time;

a lead time probability distribution calculation section that calculates an appearance probability of a lead time of the commodity or ~~its~~ components of the commodity to create a probability distribution h_k of the lead time;

an effective lead time calculation section that calculates, based on the customer's required delivery time and lead time, an effective lead time T_i that denotes ~~the a~~ period between ~~the a~~ time when it has been predicted that the commodity stock will fall below a corresponding reorder point and ~~the a~~ time when the commodity has become available after the commodity had been ordered based on the prediction that the commodity stock would fall below a corresponding reorder point;

an effective lead time probability distribution calculation section that calculates an appearance probability of the effective lead time T_i ~~for each lead time T_i~~ based on the probability distribution g_j of the customer's required delivery time and the probability distribution h_k of the lead time to create a probability distribution f_i of the effective lead time;

a safety stock amount calculation section that calculates a safety stock amount ss based on a demand standard deviation σ_D for a certain commodity per unit of period, a safety coefficient k that denotes the level of a ratio of service S for demand, the effective lead time T_i and the probability distribution f_i of the effective lead time; and

a reorder point calculation section that calculates a reorder point Q_{RO} based on the safety stock amount ss , a representative value DA ~~from which elected~~ including any one of an average value, median, mode and experimental value of a demand per unit of period, and a marginal lead time L_M that denotes a minimum value of the effective lead time to be obtained after the cumulative value of the appearance probability of the effective lead time T_i has exceeded the ratio of service S .

72. **(Currently Amended)** The reorder point calculation device according to claim 71, ~~characterized in that~~ wherein the reorder point calculation section calculates the reorder point Q_{RO} by ~~further~~ using a demand frequency F_D that denotes an appearance probability of the period during which demand per unit of period is not 0 in addition to the safety stock amount ss , representative value DA of a demand, and marginal lead time L_M .